A.D. 1864, *21st October.* N° 2604.

Anchors.

LETTERS PATENT to François Martin, of Acton, in the County of Middlesex, Gentleman, for the Invention of "IMPROVEMENTS IN THE CONSTRUCTION OF ANCHORS."

Sealed the 28th February 1865, and dated the 21st October 1864.

PROVISIONAL SPECIFICATION left by the said François Martin at the Office of the Commissioners of Patents, with his Petition, on the 21st October 1864.

I, FRANÇOIS MARTIN, of Acton, in the County of Middlesex, Gentleman, do hereby declare the nature of the Invention for "IMPROVEMENTS IN THE CONSTRUCTION OF ANCHORS," to be as follows :—

This Invention relates to improvements in that description of anchor where both flukes or palms are arranged to enter the ground together in place of one only, as in the ordinary anchor, and part of my present improvements are intended to simplify, and thus facilitate the construction of such anchors, thereby greatly reducing the cost of manufacture.

Anchors constructed according to my improvements are also more effective and certain in their action, at the same time they are so constructed as to offer less resistance when in the act of being raised.

In place of forming the shank with a forked head, as heretofore, according to the first part of my improvements, I form the shank from a bar, by preference flat from end to end, except near the head, which may be enlarged or formed with projecting palms. A circular hole or eye is formed at the head to receive the U-shaped arms forming the flukes or palms of the anchor, the construction of the shank is thus much simplified, and the cost of manufacture greatly reduced.

Martin's Improvements in the Construction of Anchors.

The second part of my improvements consists in forming the head of the shank with projections or enlargements, which serve as fulcra to withdraw the flukes or palms backwards when the free end of the shank is being first raised, thus lessening the amount of resistance at the point of holding when the anchor is in the act of being raised.

The third part of my Invention relates to several improved modes of mounting the U-shaped arms and flukes or palms in the circular eye formed in the head of the shank, and in the arrangement of the resisting surfaces or stops which determine the amount of axial movement of the arms in either direction when moved to a proper angle in relation to the shank at the time the anchor is taking hold.

According to one mode of carrying out this part of my improvements, I form the central part or axis, on which the arms move or partially rotate in the eye in the head of the shank, with a fixed circular collar or shoulder to fit into the circular eye of the shank. The inner part (by preference) of this fixed collar or shoulder is partially removed at each side or end thereof to form teeth or projections, which serve to arrest the further movement of the arms on their central axis when such teeth or projections come in contact with stops fixed on each side of the shank, such fixed stops also serving to retain the axis of the arms in a central position in the eye of the shank.

Another mode of securing the arms within the eye or head of the shank consists in forming a curved recess or recesses partly around the circumference of the central axis of the arms, and inserting a key through the shank to enter such recess, and thus act as a resisting stop to determine the angle of inclination of the flukes; or set screws or pins may be passed through the head of the shank into such recesses to form stops thereto. A similar result to that previously described is obtained by leaving a rib or projections, or by inserting a key or keys, so as to project and form a rib within the eye of the shank, such key, rib, or keys serving as fixed stops for the teeth or projections formed on the fixed collar or shoulder of the axis of the arms to act against, and thus determine the angle of resistance of the arms and flukes of the anchor. Side covering plates are fixed on each side of the shank projecting over the central collar to retain the arms in a central position in the eye. In some cases one end of the fixed collar is allowed to remain in place of being cut away or removed, as previously described, and when the parts are in position a moveable piece is fixed at the other end of the collar, so as to enclose the internal key or projection within the recess in the eye, thus serving as a stop to arrest the movement of the arms on the axis, and also to retain the axis in a central position in the eye of the shank.

Martin's Improvements in the Construction of Anchors.

The fourth part of my Invention relates to an improved mode of mounting the arms and crown piece or head in the eyes of the forked end of the shanks of anchors known as "Martin's anchors." This part of my improvements having for its object a more simple and less costly mode of mounting and securing the arms and rotating sector or crown piece in combination with the forked end of the shank. In carrying out this part of my Invention I form circular eyes in the forked end of the shank in place of oblong eyes, as previously employed, and by this means the filling pieces are dispensed with. One or more slots or key ways are formed in the eyes of the shank and of the rotating sector or crown piece, to allow the arms or flukes to pass through. The central part or axis is formed with a projecting rib or ribs to correspond with the slots or key ways formed in the eyes of the shank and sector or crown piece, so that when the parts are combined, the crown piece or sector is readily fixed to the central axis of the arms by means of screw pins, or otherwise.

The fifth part of my Invention consists in forming the points of the flukes with hollow curves on each side, and also in hollowing out the inner and outer edges of the flukes from the point upwards to the hooks formed on the inner part of the palms or flukes. I also prefer to form the arms above the flukes of hexagonal, octagonal, or other section, having flat surfaces formed thereon in place of being round, as heretofore in anchors of this description.

The sixth part of my Invention consists in giving an improved form to the steadying arms mounted on the free end of the shank of anchors of this description. According to this part of my improvements the width of the curved or inclined steadying arms tapers off from the shank to their extremities, which are of curved form, so that when the anchor is lowered the arms and the projections on the head of the shank cause the arms to fall into a horizontal position ready to take into the ground, and the taper of the steadying arms corresponding or nearly so with the taper of the shank towards its free end causes the under surface of the arms to lie flat, or nearly flat upon the ground, so as to offer considerable resistance to the dragging of the anchor.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said François Martin in the Great Seal Patent Office on the 21st April 1865.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, FRANÇOIS MARTIN, of Acton, in the County of Middlesex, Gentleman, send greeting.

Martin's Improvements in the Construction of Anchors.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-first day of October, in the year of our Lord One thousand eight hundred and sixty-four, in the twenty-eighth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said François Martin, Her special licence that I, the said François Martin, my executors, administrators, and assigns, or such others as I, the said François Martin, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN THE CONSTRUCTION OF ANCHORS," upon the condition (amongst others) that I, the said François Martin, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said François Martin, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

This Invention relates to improvements in that description of anchor where both flukes or palms are arranged to enter the ground together in place of one only, as in the ordinary anchor; and part of my present improvements are intended to simplify and thus facilitate the construction of such anchors, thereby greatly reducing the cost of manufacture.

Anchors constructed according to my improvements are also more effective and certain in their action; at the same time they are so constructed as to offer less resistance when in the act of being raised.

And in order that the nature of my improvements in the construction of anchors of this description may be most fully understood and readily carried into practice, I will proceed to describe the same, together with the various Figures of the Drawing hereunto annexed which represent the several features of my improvements, the letters marked thereon referring to corresponding parts in all the Figures.

Description of the Drawing.

Figure 1 shows a side view of an anchor constructed according to the first part of my improvements, Figure 2 is a plan, and Figure 3 shows a plan and section of the arms and flukes or palms separately.

In place of forming the shank a with a forked head as heretofore on anchors of this character, according to the first part of my improvements, I form the shank a from a bar, by preference, flat from end to end except near the head a^1, which is in this arrangement of anchor enlarged, as shown, or the head may be formed with projecting palms $^{\times\times}$, as shown in Figure $1^{\times}$. A circular hole or eye is formed through the head a to receive the U-shaped arms b, b, forming the flukes or palms of the anchor; a^2, a^2, are openings formed through the head a^1 to reduce the weight if required. By constructing the shank a in this manner it is much simplified, and the cost of manufacture greatly reduced.

The second part of my improvements consists in forming the head of the shank with projections or enlargements a^3, a^3, on each side of the axis of the arms b, which serve as fulcra to withdraw the flukes or palms b^1, b^1, backwards when the free end of the shank a begins to rise, thus lessening the amount of resistance at the point of holding when the anchor is in the act of being raised.

The third part of my Invention relates to several improved modes of mounting the U-shaped arms and flukes or palms in the circular eye formed in the head of the shank, and in the arrangement of the resisting surfaces or stops which determine the amount of axial movement of the arms b in either direction when moved to a proper angle in relation to the shank a at the time the anchor is taking hold.

According to one mode of carrying out this part of my improvements, as shown by Figures 4 and 5 of the Drawing, I form the central part or axis on which the arms move or partially rotate in the eye in the head a^1 of the shank a with a fixed circular collar or shoulder b^2 to fit into the circular eye of the shank. The inner part (by preference at $b^{\times}$, $b^{\times}$) of this fixed collar or shoulder is partially removed at each side (or end thereof) to form teeth or projections which serve to arrest the further movement of the arms b on their central axis when such teeth or projections come in contact with plates or stops $a^{\times}$, $a^{\times}$, fixed on each side of the shank a, such fixed stops $a^{\times}$, $a^{\times}$, also serving to retain the axis of the arms in a central position in the eye of the shank.

Another mode of securing or retaining the arms b in the eye or head of

the shank, according to my Invention, consists in forming a curved recess b^3 (or recesses) partly around the circumference of the central axis of the arms b, and by inserting a key b^4 through the head of the shank (as shown at Figures 1, 2, and 3, so as to enter and pass into the recess b^3) the key will act against the ends of the curved recess as a resting stop to determine the angle of inclination of the flukes; or set screws or pins b^4, b^4, may be passed through the head of the shank into such recesses to form stops thereto, as shown by Figures 6 and 7 of the Drawing.

A similar result to that previously described is obtained by leaving a rib or projection b^4 in the eye of the shank, as shown by Figures 8 and 9 of the Drawing, or such rib may be formed by inserting a key or keys so as to project and form a rib within the eye of the shank, such key, rib, or keys serving as fixed stops for the teeth or projections $b^\times$, $b^\times$, formed on the fixed collar or shoulder of the axis of the arms b to act against, and thus determine the angle of reistance of the arms and flukes of the anchor. Side covering plates a^4, a^4 are fixed on each side of the shank a projecting over the central collar b^2 to retain the arms b in a central position in the eye of the shank a.

In the arrangement of parts shewn at Figures 10 and 11, one end of the fixed collar b^2 is left solid on the arm in place of being cut away or removed, as previously described, and when the parts are placed in position (by passing the arm through the eye of the shank with the side of the collar b^2 cut away on that side to allow it to pass the rib b^4 in the eye,) a moveable piece b^5 is then fixed by screws or otherwise at the end of the fixed collar, where it is cut away so as to enclose the internal key or projection within the recess in the eye of the shank, thus serving as a stop to arrest the movement of the arms on the axis, and also to retain the axis in a central position in the eye of the shank.

The fourth part of my Invention relates to an improved mode of mounting the arms and crown piece or head in the eyes of the forked end of the shanks of anchors known as "Martin's anchors," this part of my improvements having for its object a more simple and less costly mode of mounting and securing the arm and rotating sector or crown piece in combination with the forked end of the shank. In carrying out this part of my Invention I form circular eyes in the forked end of the shank, as shown at Figure 12 in place of the oblong eyes previously employed, and by this means the filling pieces are dispensed with. One or more slots or key ways a^4, a^4, are formed in the eyes of the shank and of the rotating sector or crown piece c to allow the arms or flukes to pass through. The central parts or axis of the arms or

flukes *b*, *b*, is formed with a projecting rib or ribs b^4, b^4, to correspond with the slots or key ways formed in the eyes of the shank and sector or crown piece *c*, so that when the parts are combined by passing one of the arms *b* through the eyes of the shank and crown piece, the crown piece or sector is readily fixed to the central axis of the arms by means of screw pins c^1 or otherwise; the position of the ribs b^4 when fixed in the crown piece does not then correspond or come opposite to the slots in the forked head of the shank.

The fifth part of my Invention consists in forming the points of the flukes with hollow curves on each side (as shewn by the section, Figure 13, through the line 1, 1, of Figure 3,) and also in hollowing out the inner and outer edges of the flukes (as shown by the section, Figure 14, taken on the line 2, 2, of Figure 3) from the point upwards to the hooks formed on the inner part of the palms or flukes. I also prefer to form the arms above the flukes of hexagonal, octagonal, or other section having flat surfaces formed thereon in place of being round as heretofore in anchors of this description.

The sixth part of my Invention consists in giving an improved form to the steadying arms *d*, *d*, mounted on the free end of the shank of anchors of this description. According to this part of my improvements the width of the curved or inclined steadying arms taper off from the shank to their extremities which are of curved form, as shown at Figures 1 and 2 of the Drawing, so that when the anchor is lowered the arms and the projections on the head of the shank cause the arms to fall into a horizontal position ready to take into the ground, and the taper of the steadying arms corresponding or nearly so with the taper of the shank towards its free end causes the under surface of the arms to lie flat or nearly flat upon the ground, so as to offer considerable resistance to the dragging of the anchor.

In witness whereof, I, the said François Martin, have hereunto set my hand and seal, this Twentieth day of April, in the year of our Lord One thousand eight hundred and sixty-five.

FÇOIS. MARTIN. (L.S.)

Witness,

J. G. Tongue,

Patent Agent,

34, Southampton Buildings,

Chancery Lane.

LONDON

Printed by George Edward Eyre and William Spottiswoode,

Printers to the Queen's most Excellent Majesty. 1865.

A.D. 1864, Oct. 21, N°2604.
MARTIN'S Specification.

FIG. 1.

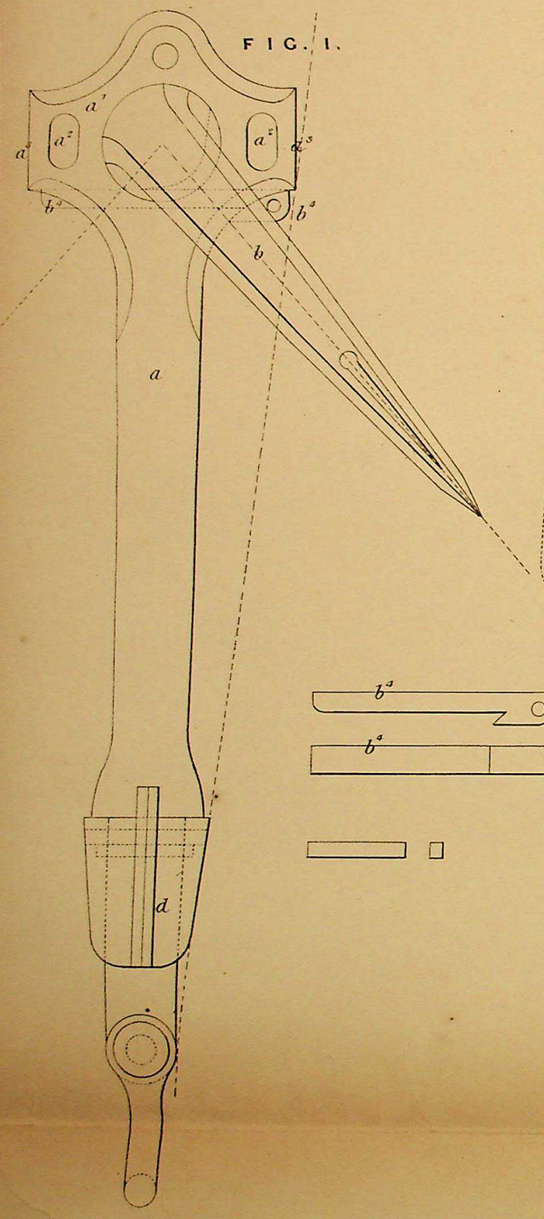


FIG. 2.

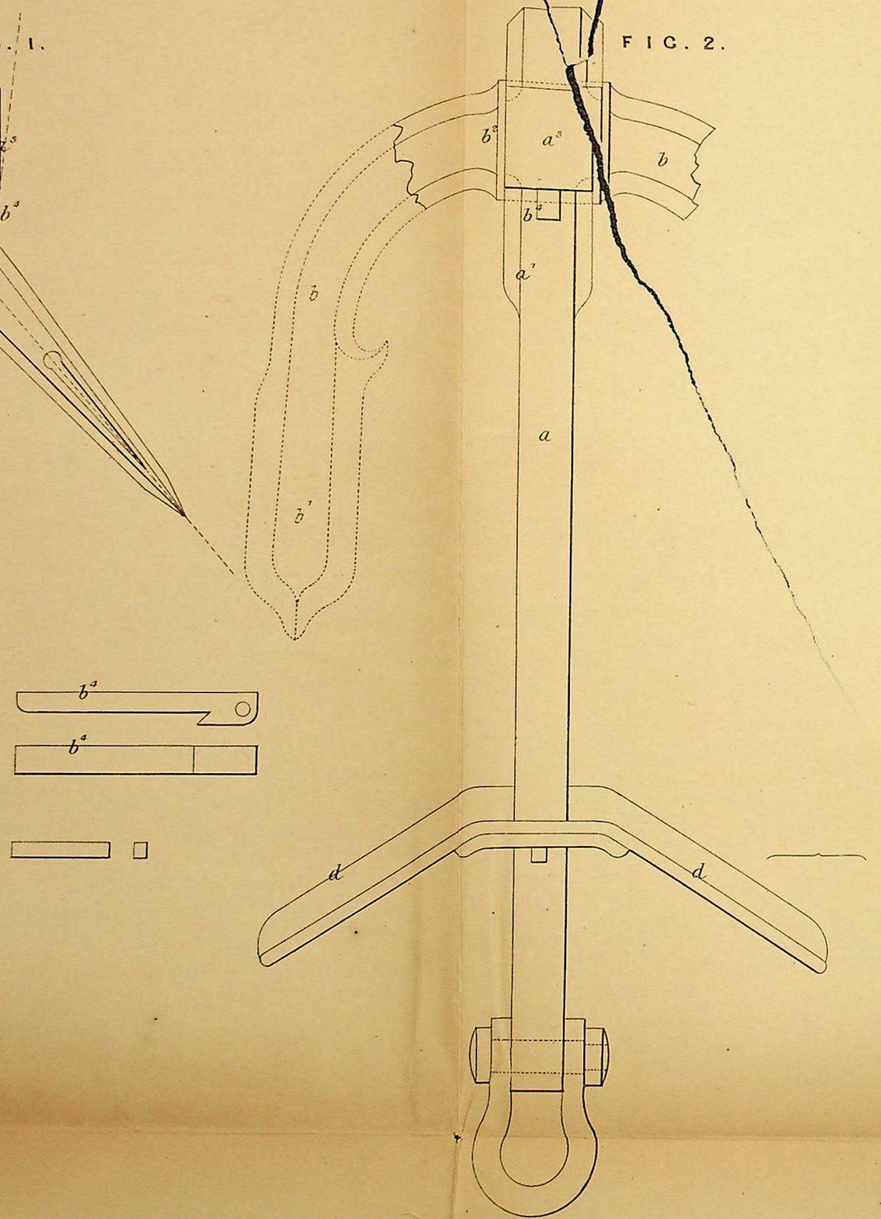


FIG. 3.

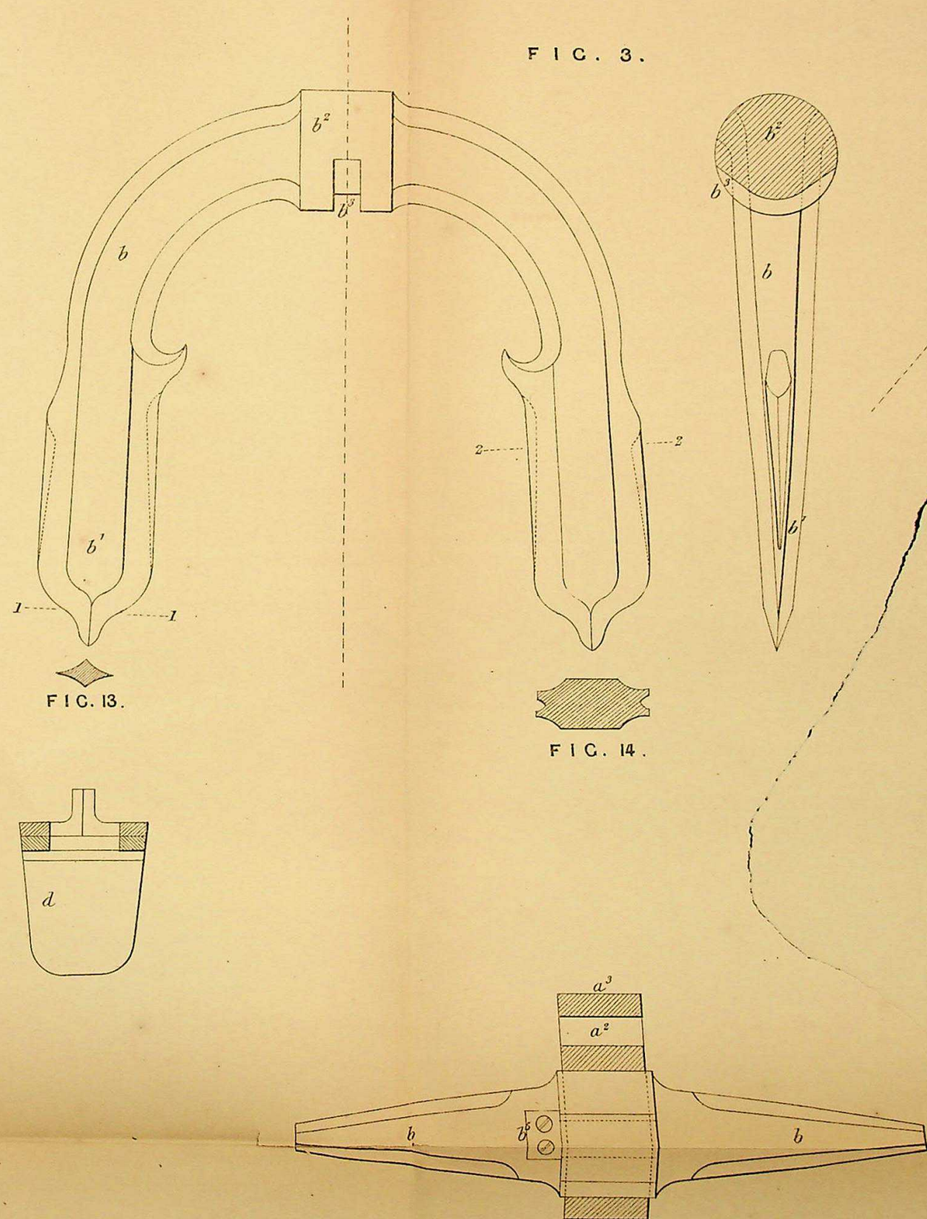


FIG. 4.

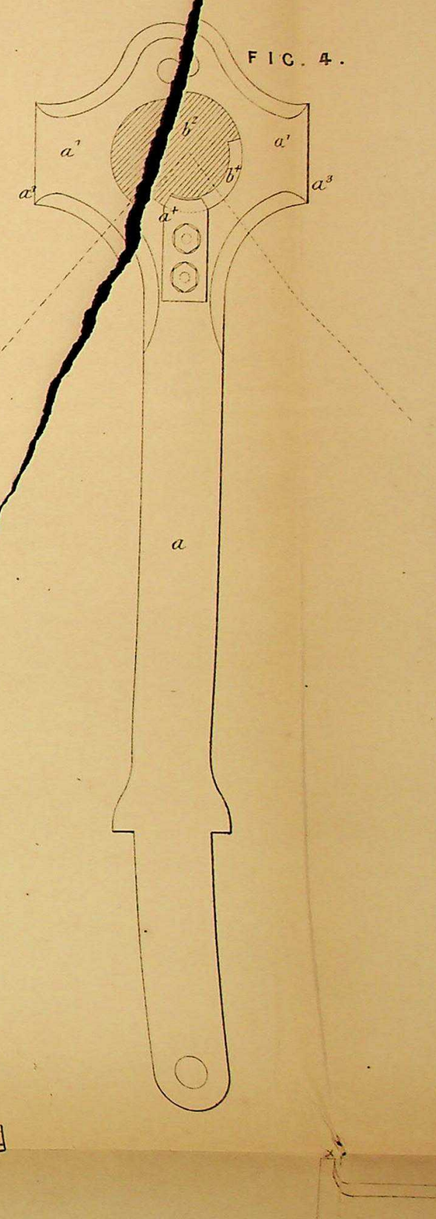


FIG. 8.

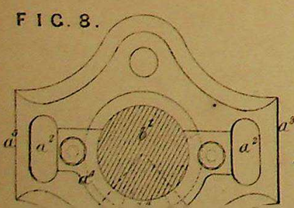


FIG. 9.

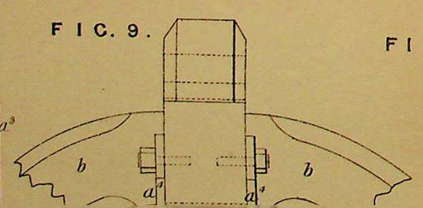


FIG. 8.

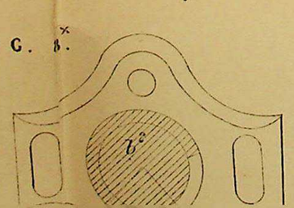


FIG. 10.

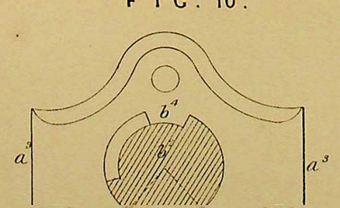


FIG. 11.

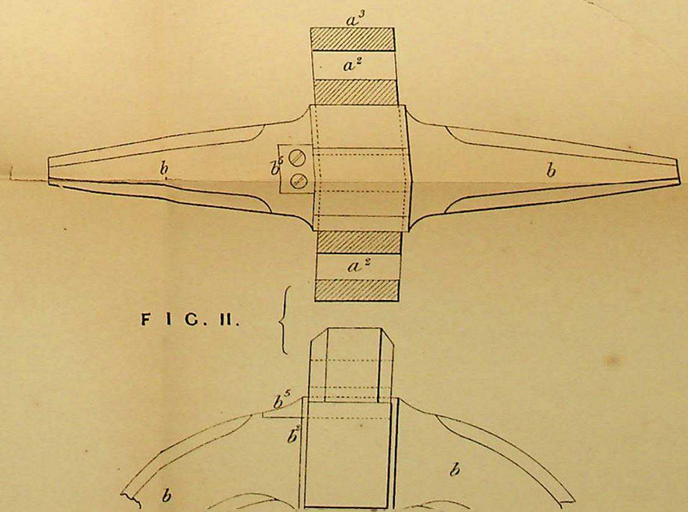


FIG. 13.

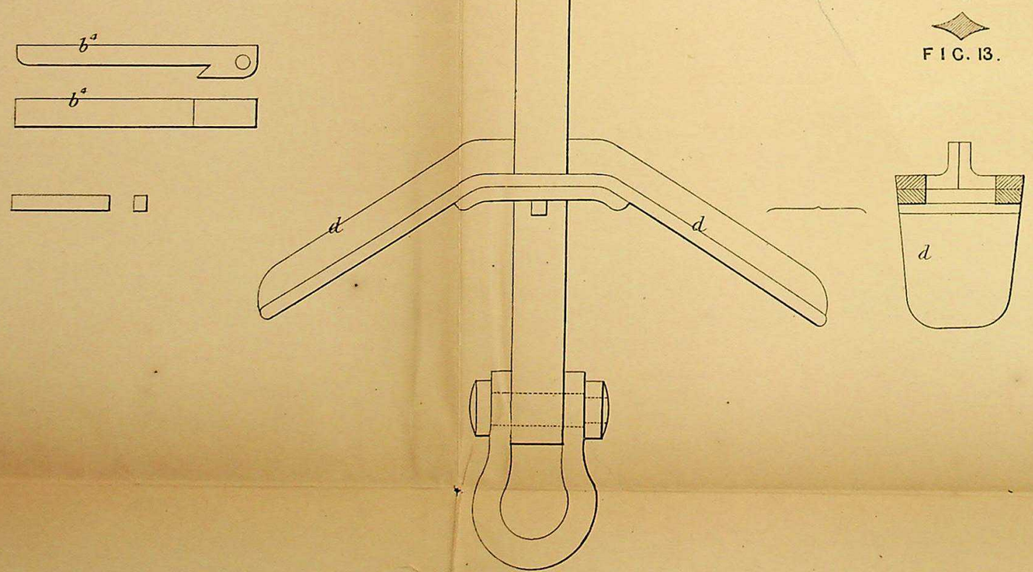


FIG. 14.

(1 SHEET)

FIG. 3.

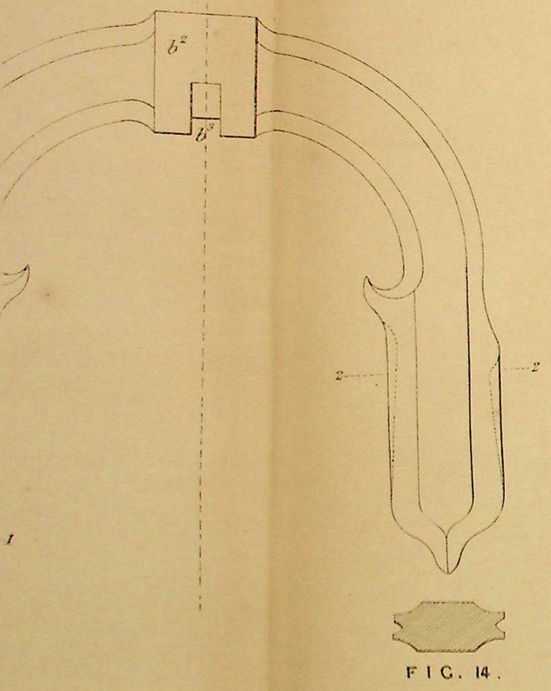


FIG. 14.

FIG. 4.

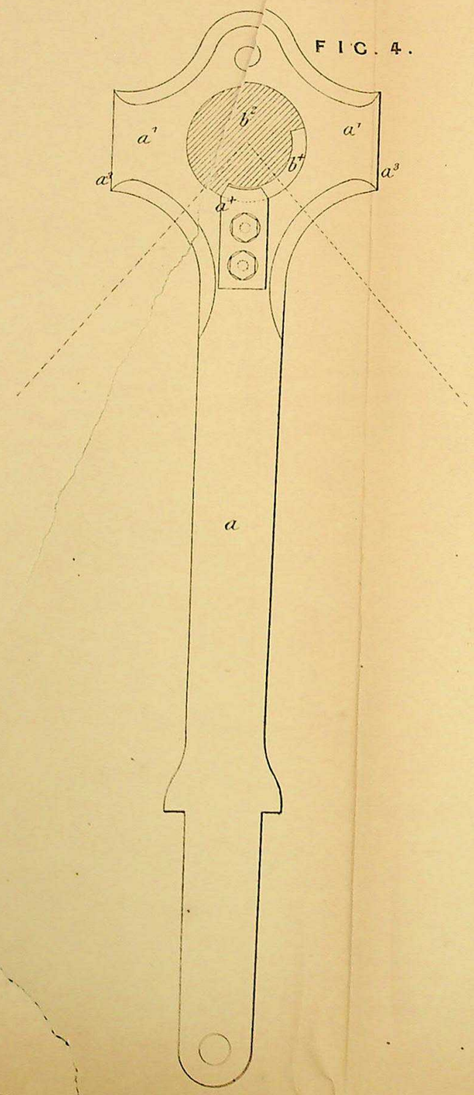


FIG. 5.

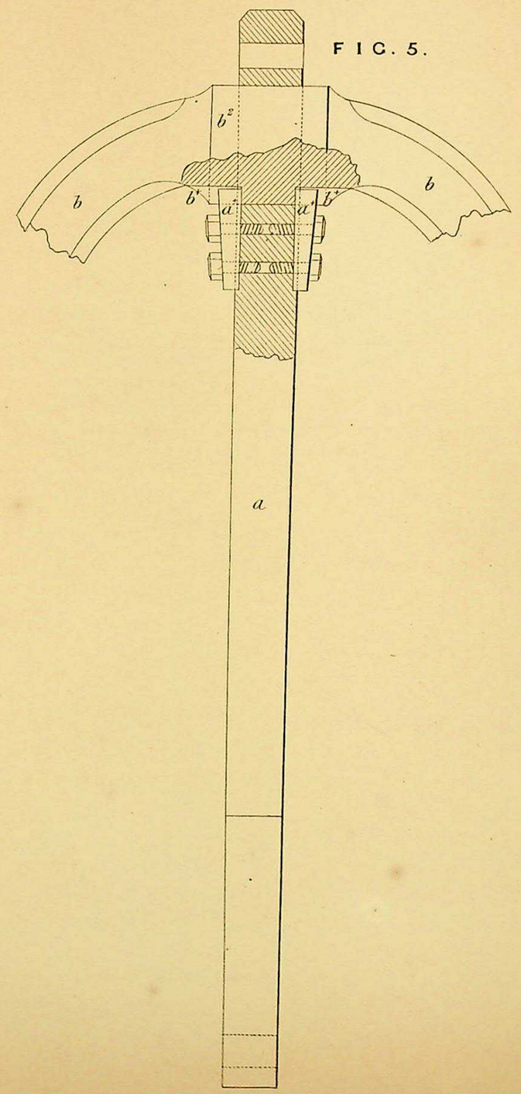


FIG. 6.

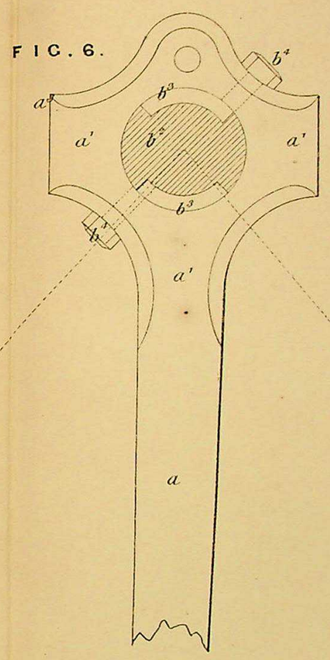
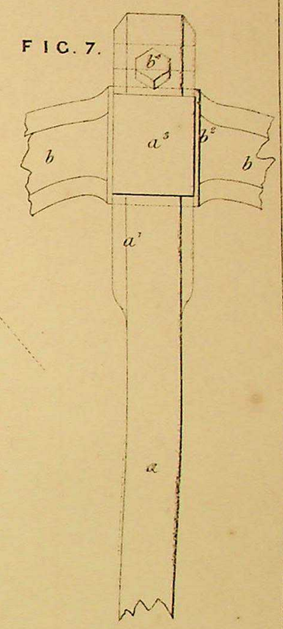
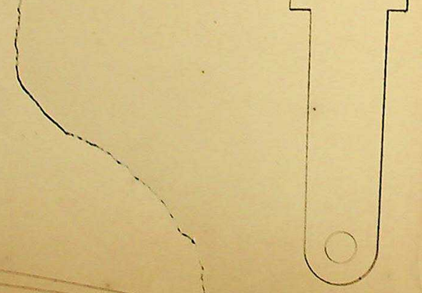


FIG. 7.





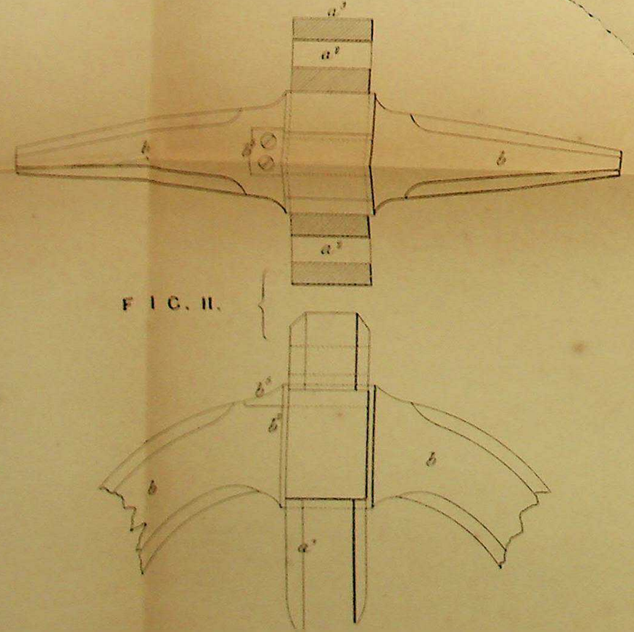


FIG. 11.

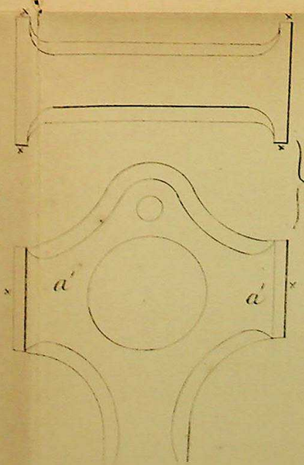


FIG. 1.

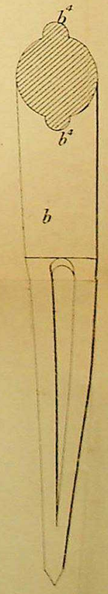
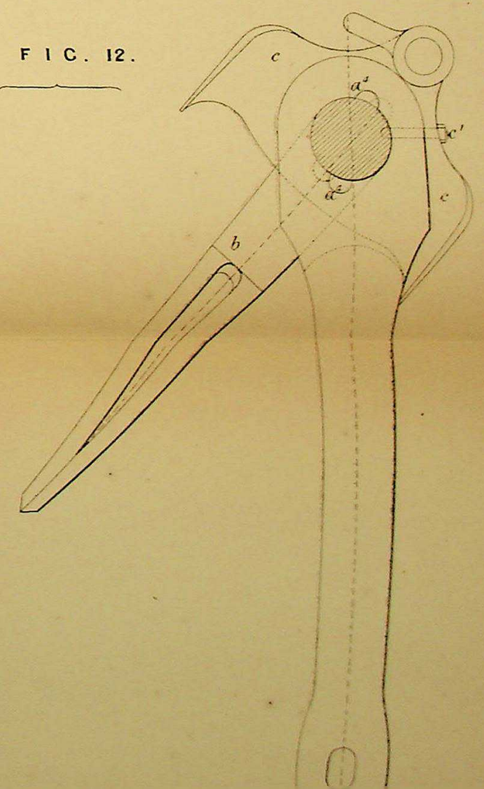
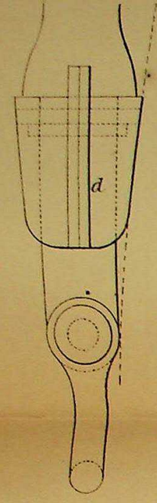
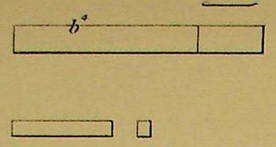


FIG. 12.







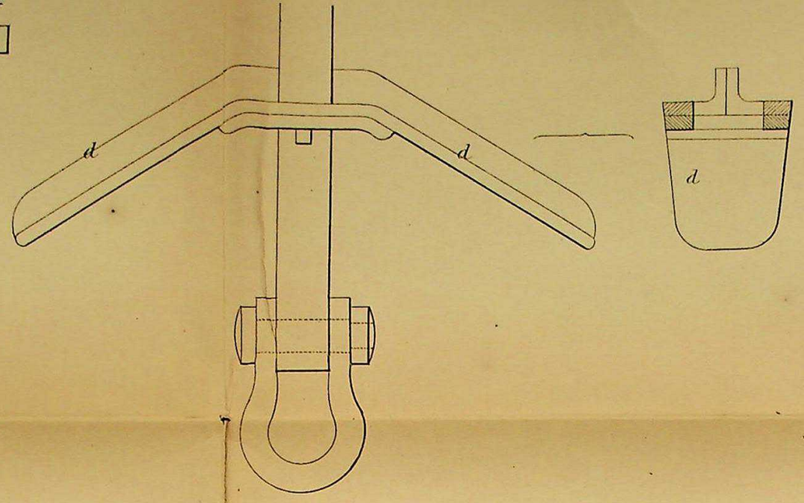
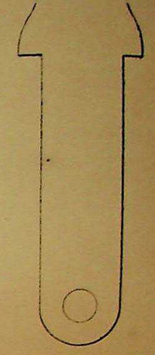


FIG. 14.



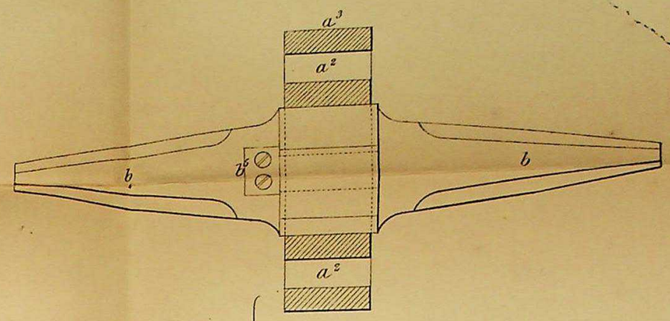


FIG. 8.

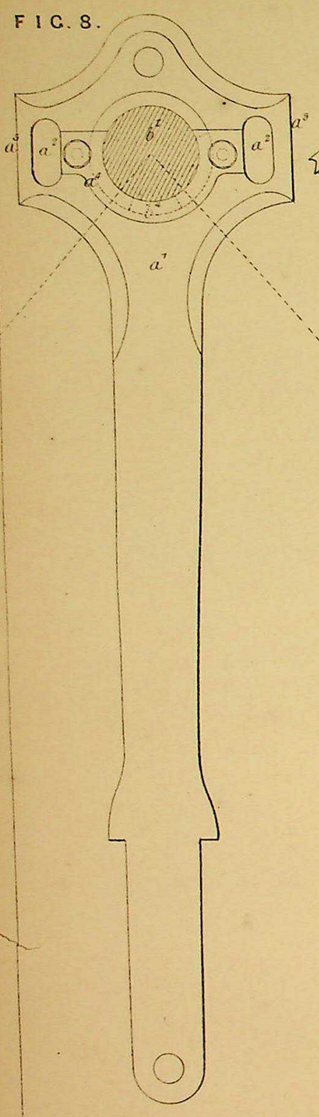


FIG. 9.

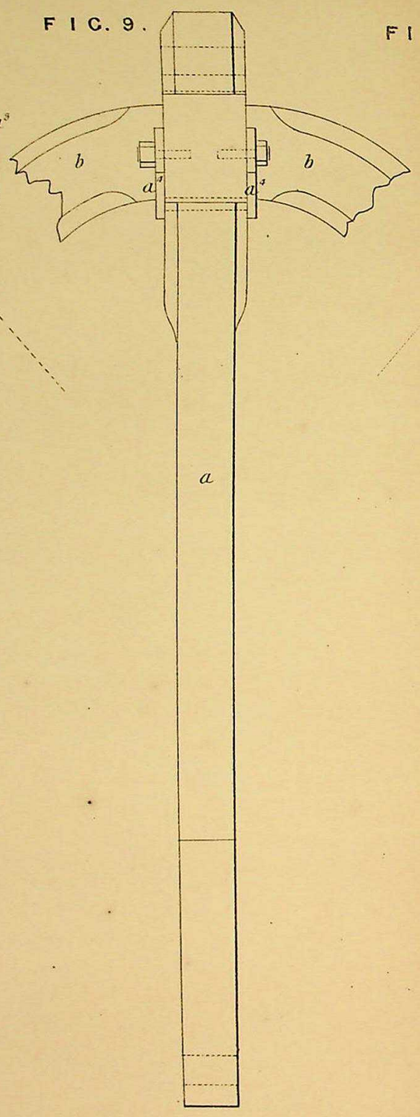


FIG. 8.

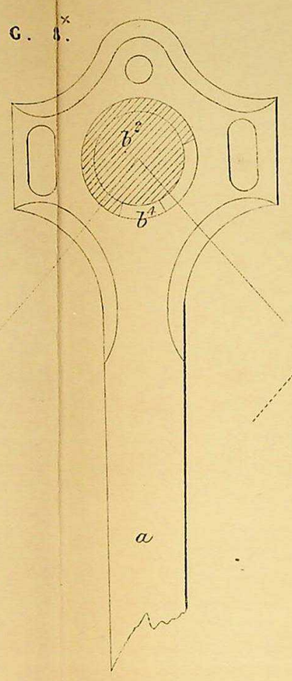


FIG. 10.

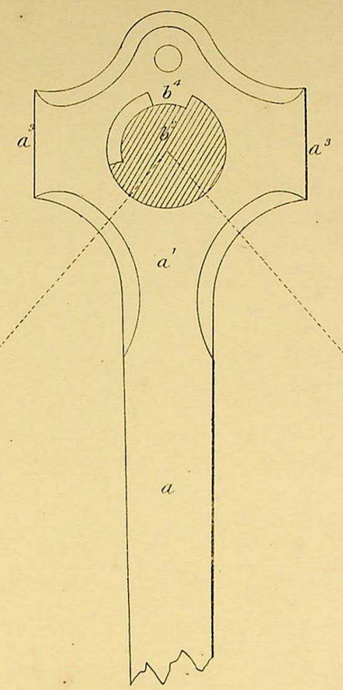
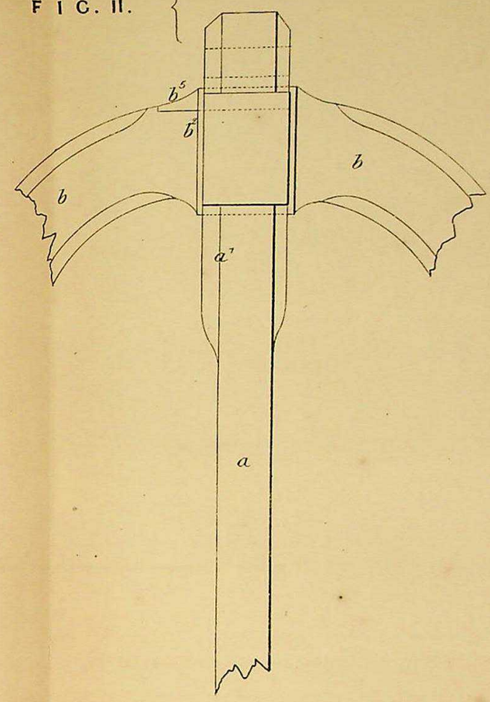
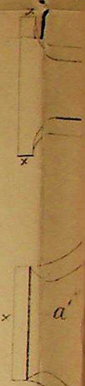


FIG. 11.





The filed drawing is not colored

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FIG. II.

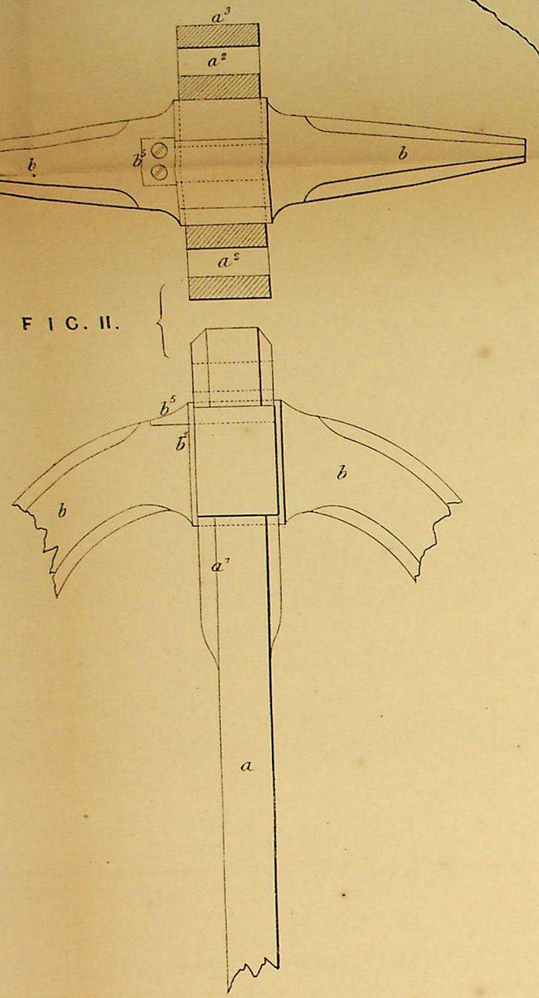
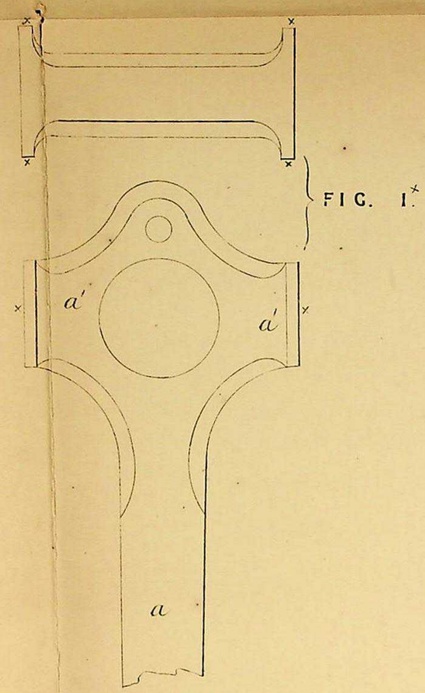
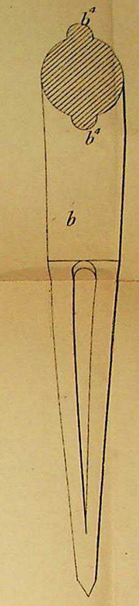
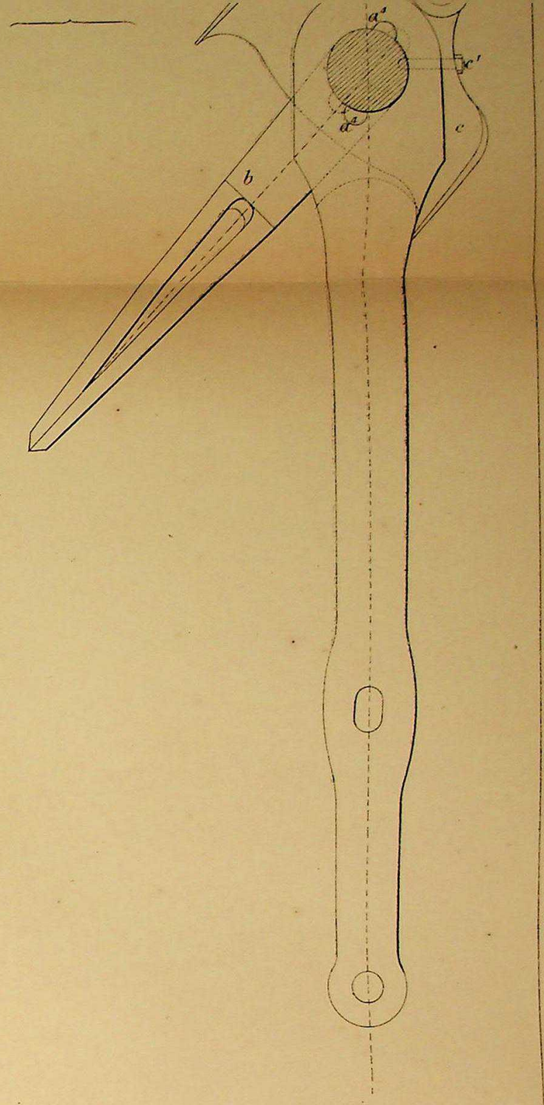


FIG. I.







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